

Claims

1. An optical analyzing device comprising:
 - a light source;
 - a waveguide having a plurality of cores and guiding light from the light source in the cores while allowing the light to repeat reflection;
 - a photodetector for receiving the light guided through the cores in the waveguide;
 - a switch having a plurality of switching elements each of which can be switched between a state where an object to be measured is detected and a state where the object to be measured is not detected, and overlapping the waveguide so that the plurality of switching elements are arranged in the length direction of the cores; and
 - a measurement object disposing area determined as a face in a position facing the waveguide via the switch.
2. The optical analyzing device according to claim 1, further comprising a test board positioned in the measurement object disposing area,
 - wherein the test board has a plurality of channels in which a specimen flows, receptors are fixed in each of the channels, and
 - cross regions of the channels and the cores overlap overlapped portions of the cores and the switching elements when viewed from the test board.
3. The optical analyzing device according to claim 2, wherein the same receptors are fixed in each channel, and receptors which are different from each other are fixed in the channels.

4. The optical analyzing device according to claim 2, wherein a metallic thin film is formed in the channel, and receptors are fixed on the metallic thin film.

5. The optical analyzing device according to claim 1, wherein a plurality of objects to be measured which are different from each other are arranged two-dimensionally in the measurement object disposing area, and each of the objects to be measured is disposed just above each of the overlapped portions of the cores and the switching elements.

6. The optical analyzing device according to claim 5, wherein a metallic thin film is formed in the measurement object disposing area, and an object to be measured is fixed on the metallic thin film.

7. The optical analyzing device according to claim 1, wherein the switch is disposed so that the switching elements are in contact with the cores, in the state where the object to be measured is not detected, light guided in the cores is reflected by the switching elements and, in the state where the object to be measured is detected, light guided in the cores passes through the switching elements.

8. The optical analyzing device according to claim 7, wherein the switch is constructed by a liquid crystal device utilizing refractive index anisotropy of a liquid crystal, and whether guided light is total-reflected or passed can be selected with respect to each of the switching elements.

9. An optical analyzing apparatus comprising:
 - an optical analyzing device according to any one of claims 1 to 8; and
 - means for analyzing kind, amount, characteristic, and the like of an object to be tested on the basis of an output of the optical analyzing device.
10. A surface plasmon resonance analyzing apparatus comprising:
 - an optical analyzing device according to claim 4 or 6; and
 - means for analyzing kind, amount, characteristic, and the like of an object to be tested on the basis of an output of the optical analyzing device by using surface plasmon resonance phenomenon.
11. A biochip using the optical analyzing device according to any of claims 1 to 8.
12. A light detecting method for detecting a change in light by using an optical analyzing device according to claim 1, comprising the steps of:
 - preliminarily determining a measurement portion in the measurement object disposing area while sandwiching a switching element between the measurement portion and any of the cores;
 - switching only the switching element corresponding to the measurement portion in the measurement object disposing area to a detection state among the switching elements arranged along the core corresponding to the measurement portion in the measurement object disposing area; and
 - detecting light emitted from the light source, guided in the core, and

modulated in the measurement portion via the switching element in the detection state by the detector.

13. A method of analyzing an object to be measured, for evaluating kind, amount, or characteristic of an object to be measured by using the light detecting method according to claim 12.